

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Original) A control system for a displacement on demand engine comprising:

an engine having a crankshaft;

a flywheel starter generator (FSG) that communicates with said crankshaft; and

a controller that communicates with said engine and said FSG and that initiates cylinder deactivation during engine operation, wherein said FSG adjusts torque output to said crankshaft to reduce engine speed variation during cylinder deactivation.

2. (Original) The control system of claim 1 wherein said FSG operates at a predetermined speed based on engine speed.

3. (Original) The control system of claim 1 wherein said controller adjusts current to said FSG to increase torque when engine sag is detected.

4. (Original) The control system of claim 1 wherein said controller adjusts current to said FSG to decrease torque when engine boost is detected.

5. (Withdrawn) A control system for a vehicle having a displacement on demand engine comprising:

an engine having a crankshaft;

a flywheel starter generator (FSG) that communicates with said crankshaft;

a power converter associated with said FSG; and

a controller that initiates cylinder deactivation during power generation, wherein said FSG operates at a steady state speed and adjusts torque output to said crankshaft to reduce engine speed variation during cylinder deactivation.

6. (Withdrawn) The control system of claim 5 wherein said power converter further includes a DC inverter that communicates with a high voltage bus.

7. (Withdrawn) The control system of claim 6 further comprising a DC to AC converter that communicates with said DC inverter and an outlet plug.

8. (Currently Amended) A method for operating a vehicle having an engine with a crankshaft and cylinders and a flywheel starter generator (FSG) that communicates with said crankshaft, comprising:

transitioning between an activated operating mode wherein all of the cylinders are operating and a deactivated operating mode wherein less than all of the cylinders are operating;

sensing engine speed; and

adjusting torque output to said crankshaft using said FSG to reduce engine speed variation caused by an unrequested change in engine speed in said deactivated mode.

9. (Withdrawn) The method of claim 8 further comprising operating said engine at idle speed.

10. (Original) The method of claim 8 further comprising operating said FSG at a steady state speed based on said engine speed.

11. (Withdrawn) A method of electrical power generation for a vehicle having a displacement on demand engine, comprising:

generating power using a flywheel starter generator (FSG) that communicates with a crankshaft of said engine;

performing cylinder deactivation; and

adjusting torque output to said crankshaft using said FSG to reduce engine speed variation caused by an unrequested change in engine speed.

12. (Withdrawn) The method of claim 11 wherein the step of generating power includes supplying power from a high voltage bus to a DC inverter.

13. (Withdrawn) The method of claim 12 wherein the step of supplying power further includes supplying power from said DC inverter to a DC to AC converter, which communicates with an electrical outlet.

14. (Withdrawn) The method of claim 11 wherein said starter generator includes a flywheel starter generator.

15. (Withdrawn) A method for operating a vehicle having an engine with a crankshaft and cylinders and a flywheel starter generator (FSG) that communicates with said crankshaft, comprising:

operating the engine in an activated mode;

providing a torque input with the FSG; and

transitioning from said activated mode to a deactivated mode based on said torque input by the FSG, said torque input by the FSG reducing the amount of torque needed from the engine cylinders.

16. (New) A method for operating a vehicle having an engine with a crankshaft and cylinders and a flywheel starter generator (FSG) that communicates with said crankshaft, comprising:

operating the FSG at engine speed;

operating the engine in one of a first mode wherein all of the cylinders are operating and a second mode wherein less than all of the cylinders are operating;

operating the engine in the other of the first mode and second mode defining a transition; and

adjusting torque output to said crankshaft using said FSG to reduce engine speed variation caused by an unrequested change in engine speed during said transition.

17. (New) The method of claim 16 wherein the step of adjusting torque includes adjusting current to said FSG to increase torque when engine sag is detected.

18. (New) The method of claim 17 wherein the step of adjusting torque includes adjusting current to said FSG to decrease torque when engine boost is detected.

19. (New) The method of claim 18, further comprising determining if an accelerator pedal has changed position and wherein the step of adjusting torque is performed based on said determination.